Interdisciplinary Research Issues in e-Mental Health: A Rural Perspective

Salt Lake City, UT
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Meeting Summary

Meeting Goals and Background

Telehealth technologies show promise for overcoming barriers in the delivery of mental health services to underserved locations and populations. The technology is increasingly available and it has the potential to: (a) decrease travel time for care seekers; (b) reduce stigma; (c) increase access to care and information; (d) maximize the use of resources; (e) reduce disparities in delivery, and (f) decrease professional isolation and improve provider quality of life. However, there is much to learn about the efficacy, effectiveness, and efficiencies of providing mental health care through telecommunications, particularly to rural areas (Stamm & Perednia, 2000).

An analysis of the literature and the NIMH portfolio reveals a paucity of telehealth research and researchers. While NIMH has funded a few telehealth studies, several NIMH telehealth applications have not received adequate priority scores for funding.

To address these issues, the NIMH Office of Rural Mental Health Research (ORMHR) and the Office for Special Populations (OSP) convened a working group in December 2003, *Research Issues in e-Mental Health: A Rural Perspective* including telehealth researchers Drs. Rob Glueckauf, Leigh W. Jerome, Beth Hudnall Stamm, and Peter Yellowlees, and NIMH staff Drs. Anthony Pollitt, Ernest Marquez, and Robert Mays. Participants recommended six priority areas: (1) improving the design of e-mental health research; (2) assessing linkage among treatment characteristics, clinician telecommunication skills, and mental health outcomes; (3) evaluating the impact of cultural factors on e-mental health outcomes; (4) assessing the feasibility of integrating telehealth into the larger mental health care system; (5) examining how telehealth may ameliorate ethical problems in the delivery of rural mental health services; and (6) assessing the impact of telehealth in preserving the rural mental health workforce. The working group recommended that ORMHR hold a meeting to foster collaborative grant-funded research conducted by interdisciplinary teams of telehealth researchers, clinicians, mental health researchers, research methodologists, and engineers.

Introduction

The overall findings suggest that telehealth shows considerable promise as an effective and efficient mode of treatment for persons with chronic mental illnesses, particularly depressive and anxiety disorders (Kennedy & Yellowlees, 2000; Jerome et al., 2000; Monnier, Knapp, & Frueh, 2003; Stamm, 1998; Stamm 2000; Stamm, 2003). Although the previous research appears promising, key methodological and conceptual issues have yet to be thoroughly investigated.

Major methodological limitations of e-mental health research have been small sample sizes and the use of weak non-experimental designs. There also has been a failure to recruit and retain racial and ethnic minorities in telehealth outcome research. Only a handful of studies (e.g., Eisdorfer et al., 2003) have included a representative sample of at least one racial or ethnic minority group. Although a few studies provided preliminary evidence of cost savings, the studies typically did not reflect rigorous economics and mental health services research.

From a conceptual perspective, one of the key shortcomings of current telehealth outcome studies is the failure to incorporate meaningful control or comparison groups into the research design (Glueckauf, 2002). Moreover, understanding of the relationship between provider and consumer perceptions is limited (Liss, Glueckauf, & Ecklund-Johnson, 2002). For example, no studies examine the specific factors that enhance or reduce the quality of telehealth communications across modalities, age groups, minorities, or ethnic groups, and in turn, their relationship with treatment outcome. The relationship between potential moderators of treatment and treatment outcome remains poorly understood. Finally, there is a compelling gap in the research concerning "optimal fit," that is, *which interventions are most effective for what types of problems and for whom* (Paul, 1967). Although matching telehealth technology to the person and his or her specific health concerns has long been a fundamental philosophical stance for assistive technology and telehealth advocates, this tenet cannot be simply accepted at face value (Glueckauf, Whitton, & Nickelson, 2002). In addition to these research issues, legal and regulatory issues such as reimbursement for services and licensure must be considered in the context of study design.

The avenues for research are varied. Specifically, activities could focus on the improvement of research methods, recognizing the new opportunities available with new technologies. Other activities could address the issues associated with linking telehealth interventions, clinician telecommunication skills, and mental health outcomes. Studies on the roles of race, culture and ethnicity in telehealth intervention are scarce and could be improved by incorporating advances in our knowledge of these factors from the larger field of mental health services research. There is work to be done in understanding how e-mental health can both contribute to, and benefit from, the integration of health service systems. There are well known ethical dilemmas associated with providing rural mental health services, but little is known about whether telehealth will ameliorate these concerns. . Finally, e-health has been seen as a method to support professional quality of life to preserve the rural workforce, but it is unclear whether or not this is the case.

Recommendations for Specific Research Areas and Topics

1. Examine Research Methods.

Close the gap between knowledge gained from empirical means and practices in the field. In general, because telehealth implementation has outstripped telehealth research, there is a lack of reliable and valid research regarding telehealth and mental health.

a) Improve Research Design. Because telehealth is a rapidly growing area, the field would benefit from a variety of methods in which the design fits the level of extant knowledge on each specific question. For example, pilot or developmental studies could add knowledge about newly emerging technologies, while larger longitudinal studies would evaluate efficacy and cost-effectiveness of widely available modalities such as automated telephone systems, "chat-room" type interventions, and Web-based user-generated programmed response instruments. While the perception exists that the field changes too rapidly for longitudinal studies, in fact, the actual health care applications do not change as rapidly as the equipment upon which they are based.

Recommendations: Investigators should consider using various types of research designs. While double-blind studies may not be possible, randomized, single-blind studies, longitudinal, or community-based randomized trials, such as the COMMIT trials (COMMIT Research Group, 1991) are possible. Comparing the outcomes of telehealth versus face-to-face treatment is only a beginning point in e-mental health research. Investigators need to incorporate comparison groups into their research designs that test specific theory-driven hypotheses, concentrating on ways to develop conceptually meaningful control or comparison groups. Investigators also need to determine which alternative comparison groups are meaningful for telehealth research, and whether in-person versus face-to-face interactions is the "gold standard" for clinical interventions.

b) Improve Assessment of Mental Health Outcomes. One of the key methodological limitations of current mental health services research is the lack of measures for ecological validity. Most studies rely heavily on patient self-report and clinical diagnostic judgments to assess the effects of interventions, limiting the internal validity of the findings. One potential benefit of telehealth is the capacity to measure patient and family members' behavior directly in the home and/or community environment. For example, behavioral samples of patient-family interactions, level of adherence to psychotropic medication regimens, and recording of daily activity patterns can be obtained online during or close to the time of occurrence. Moreover, these behavioral observations can be repeated multiple times over the intervention study. Research can determine whether the use of these and other telehealth-based assessment methods lead to incremental gains in both measurement validity and reliability. Another benefit of telehealth technologies may lie in the capacity to aggregate and analyze existing large data sets—such as is found in health/mental services—or large data archives to help identify utilization or systems issues.

A venerable method for understanding psychological constructs that are not easily measured is to take multiple measures of the construct of interest. The multitrait/multimethod approach purports that if multiple measures that should be similar

return similar results and those measures that should be different return different results, it is possible to have more confidence in the research results (Campbell & Fiske, 1959). This technique, while often praised in the literature, has not been optimized (Fisk & Campbell, 1999). Technology offers the opportunity to employ data-gathering techniques beyond questionnaires and structured interviews. As research spans specialty mental health care and general health, new opportunities appear for standardized and mainstream measures such as those used in general health care settings. Data can be collected from within the existing systems such as electronic medical records or billing systems. Together, these options actually point logically to multitrait/multimethod measures obtained from consumers and providers, and include recognition of cultural issues and external validity.

Recommendations: Research should examine the generalizability and clinical utility of common and newly emerging measures across telehealth modalities and mental health populations. There is a need to determine the range of measurable mental health outcomes and the best methods for collecting such data to ensure comparability of measurement across telehealth projects or sites. Finally, given the large amount of data that telecommunication technologies allow us to accumulate, researchers should improve the ecological validity of their work.

2. Examine the Relationships Among Telehealth Intervention, Clinician Telecommunication Skill, and Mental Health Outcomes.

Telehealth is seen as a method for preventing the formation of or intervening in mental illnesses. Telehealth is also perceived as a method for promoting mental health. For many rural people, self-determination and access-related themes such as adequacy, acceptability, and affordability, is key to addressing access and quality. Both evidence-based protocols and telehealth are seen as solutions to these problems. Yet, there is a lack of information about the link between processes, clinical skills, and outcomes in these areas (Hohmann & Shear, 2002). Researchers should take seriously the link between science and practice, recognizing that the existence of a protocol does not address the implementation of that protocol. True evidence-based medicine must consider the treatment efficacy, clinician skill, and the characteristics of the people receiving treatment (Institute of Medicine, 2001).

Recommendations: This area is rich for investigation. For example, to what extent do mental health outcomes vary as a function of type/severity of disorder, developmental phase, type of treatment modality, population, provider, geography, social support, ethno cultural/racial background, language? What are the essential features or predictors of effective mental health care delivered through telehealth? Can telehealth encourage individuals to seek and remain in mental health treatment? Can telehealth reduce the barriers of stigma? Can telehealth assist in infusing mental health care into general medical and dental settings? Does telehealth uniquely support the use of holistic and/or alternative mental health treatment methods such as those that are culture-specific? Can telehealth support treatment to prevent or intervene in the development of secondary and tertiary disorder development? How do telehealth-augmented preventions or interventions affect costs of overall rural mental health care? How does telehealth affect where care is delivered? For example, are there additional locations that have not been

used such as schools, prisons, nursing homes, etc., and does the location affect the efficacy of the care?

3. Evaluate the Impact of Cultural Factors on the Success of e-Mental Health Interventions.

Rural communities are increasingly socially, economically, and culturally diverse, and these demographic changes may impact the access, use, and quality of mental health services. These issues were discussed in a 2002 ORMHR-sponsored meeting. A summary of *Research on the Impact of Socio-Cultural Factors on Access and Use of Mental Health Services in Rural Populations*, can be found at: http:// www.nimh.nih.gov/research/March2002rural.cfm. In the context of telehealth an additional issue, the digital divide is relevant.

Recommendations: Studies should examine how telehealth effects issues such as the cultural competency of mental health care providers and systems; whether differences exist between racial and ethnic group consumers concerning their satisfaction with telecommunication-based care; the effect of language translations provided by telecommunications methods; and technology literacy. Research should also address disability issues, and control for age, race, and gender. Additionally, there are broad social questions such as how the implementation of telehealth affects communities and their citizens in relation to mental health care and help-seeking behaviors; this latter question can be tied to social or personal issues, such as genomics.

4. Investigate the Integration of Telehealth into the Larger Mental Health Care System.

Distributed health service systems, in which patient data exist simultaneously in multiple locations, has changed the practice of health care. There are two very common types of distributed systems, (a) electronic patient records, and (b) locations that provide general information such as the Internet. The use of aggregate data from distributed systems has led to large-scale studies affecting the way we perceive health and the fit between mental/behavioral and general health. The availability of these studies increased the number of people with information access and the methods used to collect information. Some of these documents include the 2004 WHO *Global Burden of Disease*, the U.S. Surgeon General's Reports on *Mental Health,* (U.S. Surgeon General's Report, 1999) *Youth Violence,* (U.S. Surgeon General's Report, 2001) and on *Culture, Race and Ethnicity* (U.S. Surgeon General's Report, 2001) in addition, access to information and care provision has transformed as telehealth allows for distributed care systems that increase flexibility, access, and quality. While they support consumer access to "layered" levels of care (e.g., home/self, primary, secondary, and tertiary) appropriate to specific needs at specific times, they also point to new legal, regulatory, and political issues.

Recommendations: Research questions about how telehealth affects mental health care in a distributed system include the following. How do digital records such as registries or electronic medical records, affect care due to multipoint access to the patient's medical records? Can information access increase utilization of or quality of care through consultation liaison systems (e.g., training primary care providers in mental health,

increasing appropriate referrals to specialty mental health care, reducing stigma)? How does telehealth improve access to and/or quality of institutional mental health services (e.g., hospice, prisons, schools) for underserved rural and urban populations? How does telehealth improve accessibility and/or quality of mental health services through community-based organizations such as faith-based groups, agricultural extension agencies, or volunteer support groups? What is the economic impact of access to services through telehealth compared to non-availability of services or traveling to obtain care?

5. Explore Telehealth to Reduce Ethical Problems in Delivery of Mental Health Care.

Some barriers to care are embedded in the system so deeply as to be ethical issues. Two key issues affecting mental health and mental illnesses are self stigma (shame) and stigma from others. Stigma may extend to providers such that the provider's attitude becomes a barrier. Other common barriers include payer-oriented ones, particularly the lack of parity for mental health services when compared to reimbursement for other medical problems.

Recommendations: Investigators should examine how/whether telehealth could ameliorate ethical issues that affect delivery/receipt of mental health services in rural communities (e.g., stigma, privacy, confidentiality, quality of care, provider training/consultation, treating the rural provider's family, etc.). Other ethical issues may arise from the use of telehealth. For example, how can we ensure ethical delivery of mental health services provided through telehealth and what are the efficacious methods for ensuring patient privacy and confidentiality?

6. Study Preserving the Rural Workforce

Workers in mental health care, both formal and informal, affect and are affected by telehealth. The acceptance of telehealth as a tool for the treatment and management of mental disorders is closely related to those who use the technology. Infusion of technology into existing programs and protocols depends on the workers' willingness to work with new technology. In addition, telehealth offers the potential to improve a worker's professional quality of life by improving access to supports that enable the caregiver to do their work (Stamm, 1999).

Recommendations: Studies should examine whether telehealth can be used to preserve the existing workforce by ameliorating provider work-related mental health problems, burnout, low recruitment, and poor retention. Other studies should examine the best educational methods for increasing the skill of the workforce both about and through telehealth. These issues presume the need for knowledge about provider and consumer motivation to adopt new health care techniques. Studies should also assess both providers and consumer's perceptions of the benefits and limitations of telehealth technologies in the treatment of mental health problems. For example, what motivates or prevents providers or consumers to include telehealth in their treatment? Are there differences between their willingness to change their behavior?

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